

referred to as “the Chishti et al. ‘511 patent”) in view of U.S. Patent No. 5,879,158 Doyle et al. (hereinafter referred to as “the Doyle et al. ‘158 patent”) and U.S. Patent No. 5,338,198 to Wu et al. (hereinafter referred to as “the Wu et al. ‘198 patent”); and rejected claims 45 – 47 under 35 U.S.C. §103(a) as being unpatentable over the Chishti et al. ‘511 patent in view of the Doyle et al. ‘158 and the Wu et al. ‘198 patent and further in view of U.S. Patent No. 6,334,853 to Kopelman (hereinafter referred to as “the Kopelman ‘853 patent”).

By this Response, the prior art rejections been traversed. It is respectfully submitted that no new matter within the meaning of 35 U.S.C. §132 has been introduced to this application.

Rejections Under 35 U.S.C. §103(a)

To establish a *prima facie* case of obviousness, the Examiner must establish that the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

1. The Chishti et al. ‘511 Patent In The Doyle et al. ‘158 Patent And The Wu et al. ‘198 Patent

The Examiner rejected claims 27 – 44 and 48 – 54 as being unpatentable over the Chishti et al. ‘511 patent in view of the Doyle et al. ‘158 patent and the Wu et al. ‘198 patent.

Response

Applicant submits that a *prima facie* case of obviousness has not been established since the present application predates the primary reference of the cited prior art combination and, without the primary reference, the cited prior art combination does not disclose, teach or suggest all of the

features of the presently claimed invention.

The present application has an earliest priority date of December 30, 1997. The Chishti et al. '511 patent has a filing date of October 8, 1998. A certified copy of the priority document (in English) is attached in the Appendix to this paper. Certification as required by 37 C.F.R. §§1.55(a)(4)(i) & (ii) is included on the cover page of the priority document. Therefore, Appellants respectfully submit that the Chishti et al. '511 patent is not prior art against the currently pending claims.

The remaining cited prior art combination does not disclose, teach or suggest all of the features of the presently claimed invention. The method disclosed in the Doyle '198 patent is based on the following steps (see for example, on col. 3 lines 8-26 and a more detailed explanation in col. 6 line 18 to col. 10 line 34): "displaying a center axis of each tooth in the set of teeth, wherein the center axis extends between a root portion and a crown portion of the tooth; determining differences between the position and orientation of the center axis of each tooth and torque, tip and angulation values for each tooth representing a desired position and orientation of the tooth for a selected set of orthodontic brackets; determining differences between the digitized three dimensional video image and a statistically average tooth for each tooth; determining an optimum position of each bracket on an associated tooth for moving the tooth to the desired position and orientation; determining a size and shape of a positioning jig for each bracket and tooth combination for optimum positioning of each bracket on a respective tooth for moving the tooth to the desired position and orientation; attaching each jig to an associated bracket and installing each jig and bracket combination on a respective tooth in said optimum position; removing each jig from its associated bracket; and attaching an archwire to the brackets."

As can be seen, the Doyle method involves the determination, for each tooth, of a "bracket sighting point" or BSP, which is a virtual and theoretical point that represent the center axis of the tooth

(see step 17 in Fig. 3a, col. 6 lines 21-41). The Doyle method further involves the presentation of an archwire and the positioning of the archwire in a plane that is defined theoretically by leveling the BSP for each tooth so that each of the BSP's in a jaw are common to a plane (see col. 6 lines 54-59). The Doyle method further involves, for each tooth, the positioning of the bracket onto the archwire. In order to overcome the differences between the theoretical, calculated positioning of the brackets (i.e. the BSPs) and the resultant positioning of the brackets on the archwire, a "fine-tuning" is carried out which involves calculations based on the following data: statistical information (e.g. the data relating to a "statistically average" tooth) (see Fig. 12 and text in col. 7 lines 42-50); the measured data (i.e. the data corresponding to the specific patient's tooth); information relating to the specific bracket in use (e.g. torque information).

The Wu et al. '198 patent discloses a dental modeling simulator that operates by measuring molded impressions of teeth on a support table, the support table defining an X-Y plane. A laser probe detects Z-axis measurements in a first position; the molded impression is then tilted and the measuring process is repeated to obtain theretofore hidden measurements. A virtual three-dimensional model is thus produced.

a. Claim 27

Among other things, independent claim 27 recites a method for selecting orthodontic components comprising "generating a prescription for orthodontic treatment including specifying the type of components used based on the components of the virtual treatment."

In contrast to the presently claimed invention, the validly cited prior art combination is completely silent as to a step of "generating a prescription for orthodontic treatment including specifying the type of components used based on the components of the virtual treatment" as recited

in independent claim 27. Rather, the cited prior art combination is directed toward modeling of a patient's teeth rather than diagnosis of problems and *prescriptions* of solutions for those problems. Thus, the cited prior art combination does not disclose, teach or suggest all of the features recited in independent claim 27 of the present application.

b. Claim 50

Similarly, the cited prior art combination does not disclose, teach or suggest all of the features recited in independent claim 50.

Among other things, independent claim 50 recites a method for selecting real-life orthodontic components for use in an orthodontic treatment of an individual comprising "selecting a virtual set of orthodontic components representing real-life orthodontic components that may be used in an orthodontic treatment, said virtual set of components simulating the components of said real-life set...."

In contrast to the presently claimed invention, the validly cited prior art combination does not disclose, teach or suggest a step of "selecting a virtual set of orthodontic components representing real-life orthodontic components that may be used in an orthodontic treatment, said virtual set of components simulating the components of said real-life set....," as recited in independent claim 50. Again, the cited prior art combination is directed toward modeling of a patient's teeth rather than diagnosis of problems and prescriptions of solutions for those problems. Thus, by itself, the Wu et al. '198 patent does not disclose, teach or suggest all of the features recited in independent claim 50 of the present application.

Accordingly, Applicants respectfully request that the Examiner allow independent claims 27 and 50 and allow all claims dependent thereon by reconsidering and withdrawing the rejection of these claims as being obvious over the cited prior art.

2. The Chishti et al. '511 patent in view of The Doyle et al. '158 Patent and the Wu et al '198 Patent and Further in View of The Kopelman '853 Patent

The Examiner rejected claims 45 – 47 as being unpatentable over the Chishti et al. '511 patent in view of the Doyle et al. '158 and the Wu et al. '198 patent and further in view of the Kopelman '853 patent.

Response

The arguments above with respect to the Chishti et al. '511 patent, the Doyle et al. '158 patent and the Wu et al. '198 patent are incorporated herein by reference. By this Response, Applicants respectfully traverse the Examiner's rejection since, the cited prior art combination, which now includes the Kopelman et al '853 patent, does not disclose, teach or suggest all of the features of the presently claimed invention.

The Kopelman et al. '853 patent is drawn to a method for obtaining a dental occlusion map of a three dimensional virtual computer model of teeth of upper and lower jaws of a mouth. The Kopelman et al. '853 patent fails to cure the deficiencies of the cited prior art combination since it too is silent as to a step of "generating a prescription for orthodontic treatment including specifying the type of components used based on the components of the virtual treatment" as recited in independent claim 27.

Thus, in view of the inapplicability of the Chishti et al. '511 patent and further in view of the arguments provided above with respect to the deficiencies of the cited prior art combination, Applicants respectfully submit that the presently claimed invention, as recited in independent claim 27, is not rendered obvious. As dependent claims necessarily contain all of the features of the independent claim from which they depend, claims 45 – 57, which depend from claim 27, are

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likewise asserted to be patentable over the cited prior art for at least the same reasons as independent claim 27. Accordingly, Applicants respectfully requests that the Examiner reconsider and withdraw the rejection.

CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

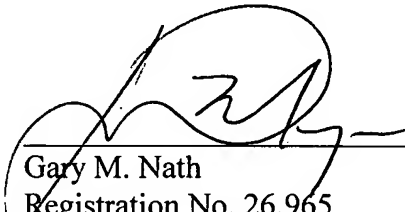
In the event this paper is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,

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APPENDIX